

ABSTRACT

A cathode composition for a lithium-ion battery having the formula $\text{Li}[\text{M}^1_{(1-x)}\text{Mn}_x]\text{O}_2$ where $0 < x < 1$ and M^1 represents one or more metal elements, with the proviso that M^1 is a metal element other than chromium. The composition is in the form of a single phase having an O3 crystal structure that does not undergo a phase transformation to a spinel crystal structure when incorporated in a lithium-ion battery and cycled for 100 full charge-discharge cycles at 30°C and a final capacity of 130 mAh/g using a discharge current of 30 mA/g.